entered as partner. The plan then adopted contemplated four volumes, two to be written by each. Tait speedily wrote the first volume, and had the great benefit of Thomson's advice and revision; but Thomson did not immediately tackle the labor of writing the second volume, and after some years it was impossible for him to sit down to such a task on account of the other exacting labors which he had undertaken. As one of his most distinguished pupils said, Thomson was no writer of text-books. In consequence the other three volumes were never written. I believe that Thomson was to have written on Electricity and Magnetism, and Tait on Heat and Light. When a second edition of the first volume was called for the matter was extended into two separate parts, mainly from additions contributed by Thomson.

The remaining chapters show that Tait wielded the pen of a ready writer. His library was largely his workshop. Like Maxwell, he could turn out good verses. Much that he wrote was controversial in nature; and, being apt to take an extreme view, he was sometimes wanting in logical consistency. All the same, he was one of the very great mathematical physicists of the Victorian age; and the ultimate verdict of the future will, I believe, place him second only to Maxwell.

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Chemistry of Food and Nutrition. By HENRY C. SHERMAN, Ph.D., Professor in Columbia University. New York, The Macmillan Co. Pp. viii + 355. 1911. Price $1.50.

In the preface to this volume the author makes the following statement: "The present work is the outgrowth of several years' experience in teaching the subject to collegiate and technical students who have represented a considerable diversity of previous training and points of view, and, while published primarily to meet the needs of the author's classes, it is hoped that it may also be of service to students and teachers elsewhere and to general readers whose main interests may lie in other fields but who appreciate the importance of food and nutrition as factors in hygiene and preventive medicine." The clear, thorough, modern and unbiased presentation of the fundamental facts and theories of nutrition, given in this text-book, should give it a necessary and permanently useful place in the instructional work of our American universities, and should also make it a valuable and convenient source of information to the general reader desiring accurate knowledge in this important and vital subject. This text might well be extensively used in our agricultural colleges as a prerequisite for the courses in animal nutrition that are as yet often inadequately taught to students in agricultural courses.

The eleven chapters of this book are devoted to the following subjects: the organic foodstuffs, the general composition of foods and action of ferments, the course of the food through the digestive tract, the fate of the foodstuffs in metabolism, the fuel value of food and the energy requirement of the body, conditions affecting the total food requirements, protein metabolism and the protein requirement, food habits and dietary standards, iron in food and its functions in nutrition, inorganic foodstuffs and the mineral metabolism, and criteria of nutritive value and economy of foods. The appendix contains tables showing (*a*) the edible organic nutrients and fuel value of foods, together with the weight in grams of the portion which would supply 100 calories; (*b*) the ash constituents of foods in percentage of the edible portion; and (*c*) the ash constituents of foods in grams per 100 calories of edible food material. The complete index to the text will materially aid the reader in finding what he wants, and the numerous references to the original literature will enable the advanced student to acquire a first-hand knowledge of the facts and theories of the science of nutrition.

The subject matter given in the chapters entitled the fuel value of food and the energy requirement of the body, conditions affecting the total food requirements, protein metabolism and the protein requirement, food hab-

its and dietary standards, inorganic foodstuffs and the mineral metabolism, and criteria of nutritive value and economy of foods, is of the greatest importance, and the reviewer believes that the views presented are in the main fundamentally sound, and that they will have an important influence in assisting the advanced student and investigator in arriving at correct conclusions upon these questions of nutrition.

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Zoologisches Addressbuch. Namen und Adressen der lebenden Zoologen, Anatomen, Physiologen und Zoopalæontologen sowie der künstlerischen und technischen Hülfskräfte. Herausgegeben auf Veranlassung der Deutschen Zoologischen Gessellschaft. 2 vollständig und bearbeitete Ausgabe. Berlin: R. F. Friedländer & Sohn. 1911. Pp. 1109. M. 15.

Biologists throughout the world are greatly indebted to the German Society of Zoologists and to the enterprising firm of Friedländer & Sohn in Berlin for this very substantial aid to research. The first edition of this zoological directory was issued in 1895, and a supplementary volume in 1901. The decade that has passed since the last supplement was published has brought many changes in the personnel, distribution and lines of interest of the biological contingent of the scholarly world, so that this new edition is particularly welcome at the present time. The work gives the correct address, official or educational connections and specialty of nearly 17,000 persons having professional or sufficient amateur interests in some field of biology to justify their inclusion in a list of zoologists. The names of a few of the leading booksellers, dealers in animals, and supply houses are included, but this element is far from complete. The lists also include, as before, the titles of the various natural history societies, museums, academies, etc., with official address, name and address of the secretary, and titles of serial publications with the date of the initial volume, a feature of great value to librarians, bibliographers and to the exchange service of scientific organizations conducting publications.

A new feature in the present volume is the inclusion of the addresses of all the various European organizations for bird protection, and of the local clubs of entomologists, ornithologists, and other amateur organizations of naturalists. In Berlin, for example, we find the "Hertha," "Nymphæa alba" and "Triton" Vereine für Aquarien- und Terrarienkunde, each with its stated hotel or restaurant where its social gatherings are held. The abundance of such organizations in Germany and Great Britain stands in noticeable contrast to their rarity in our own country. This contrast is, in a manner, an index of the smaller interest taken in this country in the study of animals, as a result possibly of the absence of instruction in natural history in our secondary schools and universities and of the predominance of the commercial spirit.

As an original document in the history of the biological sciences this volume is of particular interest as it marks (in a unique fashion) the progress of the growth of interest throughout the world in biological matters. The edition of 1895 contained about 12,000 names as over against the 17,000 of the present one. The supplementary volume of 1901 is too incomplete for comparison.

The work is international in scope and the growth here indicated is shared by all nations, though somewhat unequally. The increase in names is approximately fifty per cent. in the past fifteen years. The greatest gains, computed on the basis of pages devoted to the countries in question in the editions of 1895 and 1911, have been made in those countries which were in the lead in the earlier years. Thus, for example, Germany makes a gain of 128 per cent., Great Britain, the United States, Austria, Switzerland, exhibit gains of 80 to 90 per cent., while Russia, Belgia, Denmark and Canada show even larger growth, 100 to 110 per cent., and Japan the unsurpassed record of 170 per cent. The Latin countries have smaller increments to their